

CHAPTER 4

CONSERVATION PROGRAM, WATER RIGHTS, SYSTEM RELIABILITY AND INTERTIES

4.1 CONSERVATION PROGRAM DEVELOPMENT AND IMPLEMENTATION

Planning Requirements

Requirements pertaining to water conservation planning are based on statutes directing the Washington State Departments of Ecology and Health to encourage water use efficiency. The guidelines for water conservation emphasize flexibility, and the selection of measures and level of implementation to be achieved recognize regional differences in water supply and demand conditions.

A water conservation plan, in compliance with the conservation planning requirements, is required for approval of comprehensive water system plans (WAC 246-290-100) and for issuance of water right permits for public water systems by the Department of Ecology (RCW 90.54.180). Implementation of the required and chosen conservation measures and data collection will be made a condition of all new water right permits and will be reviewed in future water system plan approvals.

The three required elements of a water conservation plan must include:

- ♦ Water Use Data Collection - The best currently available data on water use for the categories of use identified. Such data is presented within Chapter 2 of this Plan.
- ♦ Water Demand Forecast - A complete forecast, including an estimate of reduction of water use from implementation of water conservation measures. Such a forecast is presented within Chapter 2 of this Plan.
- ♦ Water Conservation Program - Elements of a water conservation program are to include:
 1. Conservation Objectives - Individual water systems are to develop conservation objectives which logically meet its specific needs. Objectives may include attainment of maximum utilization of current supply, reduction of peak daily consumption, reduction of maximum monthly consumption, reduction of total annual consumption, promotion of long-term efficiency, usage reduction from a specific customer class, and development of public education and awareness.
 2. Evaluation of Conservation Objectives - All recommended conservation measures identified in the Conservation Planning Requirements are to be evaluated. The water system is encouraged to evaluate measures above the minimum requirements and explain decisions not to implement measures it is required to evaluate.
 3. Identification of Selected Conservation Activities - This includes a description of the conservation measures being implemented and a schedule of implementation.
 4. Target Water Savings Projections - Identification of a percentage savings goal that the entire conservation program is expected to achieve based upon the water conservation measures chosen for implementation.

The City of Selah completed a Water Conservation Plan in 1995 which was updated as part of the City's 2000 Comprehensive Water Plan. This portion of Selah's 2007 Comprehensive Water Plan is an update of the 2000 conservation plan.

Water Use Data

Water use data for the period 2001 through 2005 is presented within Chapter 2 of this Plan, some of which is repeated in Table 4-1 below.

TABLE 4-1 CITY OF SELAH WATER DATA					
	2001	2002	2003	2004	2005
Metered Water Consumption (MG/Year)	860.543	687.417	682.960	727.644	729.485
Total Water Services	1,993	1,605	1,821	2,076	2,219
Single-Family Residential Consumption (gal/serv/day)	506	548	555	525	492
Water Production (MG/Year)	unknown	unknown	802.797	786.799	797.356
Non-Revenue Water (Losses) (%)	unknown	unknown	14.9%	7.5%	8.5%

The data shows that total water services increased steadily over the last four-year period, while all other categories (total water consumption, residential consumption, water production, and non-revenue water) varied.

Water Demand Forecast

Tables 2-24, 2-25 and 2-26 forecast future water demand for the City of Selah for the years 2013 (six-year forecast), 2017 (ten-year forecast) and 2027 (twenty-year forecast). To accommodate the uncertainties in projecting future water demand and to account for system losses, which have declined significantly over the last six-year period, an additional 10% contingency factor has been applied to these projections.

Table 2-25 shows the water required to serve the City of Selah in the year 2017 (ten-year forecast) is forecast to be approximately 1,259.31 million gallons, or 3,864.1 acre-feet. This amount represents the total of all projected demands from the municipal system as it is presently operated.

Water Conservation Program

Potential water conservation measures are grouped into three categories, these being: (1) public education; (2) technical and administrative programs; and (3) policy. Example elements within these categories include:

1. Public Education

- a. School Outreach: Educational programs targeted to increase awareness of local water resources and encourage water conservation practices. Activities include school presentations, preparation of curriculum material, and tours of water system facilities.
- b. Speakers Bureau: Seek out speaking opportunities and make speakers available to a wide cross-section of service, community and other groups. Provide speakers with audio and visual aids for presentations. Focus on increasing public awareness of water resource and conservation issues.
- c. Program Promotion: Publicize the need for water conservation through television and radio public service announcements, news articles, and public water systems bill inserts.
- d. Theme Shows and Fairs: Prepare a portable display of water conservation devices and selected written material. Staff this display at local area theme shows and fairs.

2. Technical and Administrative Program

- a. Single-Family/Multi-Family Kits: Distribute kits containing inexpensive, easily installed, water-saving devices to single-family residential homes and the owners and managers of apartment buildings and condominiums. Devices in the kits include shower flow restrictors, toilet tank water displacement bags, leak detection dye tablets, and an informational brochure.
- b. Purveyor Assistance/Customer Assistance: Regional assistance to aid purveyors in developing and implementing conservation programs tailored to their needs. Similar

response by purveyors to customers who request assistance in implementing water conservation practices.

- c. Technical Studies: Studies would be designed and conducted by the public water system and/or regional organization. Study objectives would be to collect data and research new technology to develop programs which would produce measurable water savings. Study areas might include residential flow metering, lawn watering practices, commercial/industrial water use patterns, and pressure zone reductions/modifications.
- d. Non-Revenue Water/Leak Detection: Conduct a regular and systematic program of finding and repairing leaks in system mains and laterals. This would include on-site tests using computer-assisted leak detection equipment on water distribution mains, valves, services, and meters.
- e. Nurseries/Agriculture: Apply current technology to water use practices of large agriculture/irrigation operations, i.e. nurseries and park department facilities. Moisture sensors, flow timers, low volume sprinklers, drip irrigation, and other practices to increase irrigation efficiency would be implemented.
- f. Bill Showing Consumption History: An extension of the electric energy conservation program. Billings would show percentage increase/decrease in water use over the same period in the previous year.
- g. High Technology Meters: Utilize concepts of telemetry and exception reporting to detect and investigate instances of abnormal water usage.

3. Policy

- a. Require Meters: Require the installation of individual service and master source meters for all water use, including public facilities. Maintain periodic meter testing and repair program.
- b. Plumbing Code: Develop recommendations for code revisions to require water efficient fixtures for new construction and extensively remodeled buildings, and work with State officials for adoption.
- c. Landscape Management/Playfields: Promote low water demand landscaping in all retail customer classes (private, public, commercial, industrial, etc.). Work with local nurseries to ensure the availability of plants which will achieve this objective.
- d. Seasonal Pricing: Implement rate design techniques to provide economic incentives to conserve water. Under seasonal pricing, the unit price of water would be increased during a high seasonal use period. Rate setting is the responsibility of the public water system.
- e. Irrigation/Private Wells: Identification of location, aquifer source, average annual and maximum month usage to analyze impact on supply, and evaluation of availability for public water system use where land use changes occur. General purpose government would be encouraged to monitor use and consider land use and building code conditions which would promote efficient use of water from these sources. All wells above a specified capacity should be required to be metered, with use records available for resource management.
- f. System Financed Retrofit: Under a program similar to that used in the electrical energy program, installation of water efficient fixtures in existing residences and commercial/industrial facilities would be promoted by the system by: (a) providing fixtures at no cost; (b) giving a rebate for consumer-purchased fixtures; and (c) arranging for suppliers to provide fixtures at the systems' cost.
- g. Master Source Meters: Require a master source meter, at a minimum, for Base Program systems.

The water conservation plan is also to include water use data collection requirements and water demand forecast. Tables 2-16 and 2-17 present the peak annual and maximum month water use data. The City of Selah recognizes the value of collecting water production and water usage data by user category and is committed to not only continuing collection of such data, but also analysis and use of such information.

Future water demand forecast for the year 2017 is presented in Table 2-25. Water demand forecasts for six-year and twenty-year projections are presented in Table 2-24 and Table 2-26. Because these projections incorporate assumptions for residential, commercial and industrial growth, the additional uncertainties for conservation savings are not shown, but are discussed below.

Water Conservation and Rationing Measures

The City currently has a water conservation and rationing section as part of the City Water Code. That ordinance allows the Public Works Director to implement conservation and rationing measures through four alert stages, these being:

1. Stage 1 - When consumption reaches 85% of production capacity, the public is requested to voluntarily make every effort to conserve water through a variety of means, such as cutting back on irrigation, not washing cars, taking shorter showers, etc.
2. Stage 2 - When consumption reaches 90% of production capacity, the public is requested to practice "even-odd" residential landscape irrigation. Residences with odd numbered address irrigate on odd number calendar days; residences with even numbered addresses irrigate on even number calendar days.
3. Stage 3 - When consumption reaches 95% of production capacity, mandatory rationing is implemented which requires that "even-odd" landscape irrigation be practiced and that residential irrigation only take place between 5 a.m. and noon.
4. Stage 4 - When consumption reaches 100% of production capacity, all residential landscape irrigation with City water is curtailed.

Conservation Measures

The City is committed to continuing existing conservation measures and to developing and implementing additional water conservation measures, the status of which is as follows:

Program Promotion: Selah currently publicizes the need for water conservation through public service announcements and news articles. The City intends to develop inserts regarding water conservation measures to include with City Newsletters. These inserts will explain the purpose and need for water conservation practices and will serve to educate the public as to how water usage reduction can be achieved through water-saving devices and practices.

Source Meters: The City currently has meters on all wells supplying water to the City. These meters are scheduled for calibration every three years.

Purveyor Assistance/Customer Assistance: Selah currently provides assistance to all City water users regarding the development and implementation of water conservation measures. The City intends to continue to provide this assistance.

Service Meter Replacement: All City water users have service meters. Selah has a regular program of repair or replacement of all meters known to be or suspected of malfunctioning. Selah is committed to the continuation of this effort.

Non-Revenue Water/Leak Detection Program: For the period 2003 through 2005, the City has recorded an average of 10.3% difference between water production (2,386.952 MG for the three-year period) and water consumption (1,140.105 MG for the five-year period). The difference between production and consumption has generally declined during the three-year period (2003 through 2005) as shown on Table 4-1. Reasons for the decline in loss are unknown, but may in part be due to the improved telemetry system that went on-line in 2001. The City will continue to

track the difference between production and consumption, and will attempt to reduce the difference between production and consumption through annual calibration of production meters on the source wells and timely replacement of failed service meters.

Development of Nurseries/Agricultural Conservation Program: Selah's water system does not currently serve agricultural users or nurseries. As a result, no water savings would be achieved by such a program.

Development of Landscape Management/Xeriscape Program: The City has implemented a practice of "even-odd" residential landscaping irrigation. Residences with odd numbered addresses irrigate on odd numbered calendar days, and those residences with even numbered addresses irrigate on even number days. This practice has resulted in considerable savings and has lowered peak day demands.

Conservation Pricing: The City's current water rate structure was adopted in December 2006 (Ordinance No. 1741). Although the structure is based on consumption, it is a "declining block rate" structure wherein the charge per cubic foot of consumption declines with greater usage. The City is committed to revising its water rate structure in the future to fund recommended improvements identified in this Plan. As part of the planned rate revisions, the City will evaluate and consider the following rate structure options for residential and commercial accounts as a means of encouraging and promoting water conservation and reducing water demand:

1. An "increasing block rate" structure (one in which the charge per cubic foot of consumption increases with greater usage);
2. A flat rate structure; and
3. A "seasonal pricing structure" (one in which the unit price of water would be increased during the higher summer use period).

Target Water Savings Projections

It is anticipated that Selah will realize a 5% reduction in per capita water consumption through the implementation of water conservation measures. Table 4-2 provides the demand forecast for the year 2013 based on a 5% reduction in water consumption expected from the planned conservation measures.

TABLE 4-2 WATER DEMAND FORECAST FOR YEAR 2013 WITH CONSERVATION MEASURES					
	Services	Annual Demand (MG)	Average Day Demand (MG)	Maximum Day Demand (MG)	Peak Hour Demand (GPM)
Projected Demand	2,784	1,044.564	2.862	5.145	7,237
5% Conservation Reduction		52.228	0.143	0.257	362
TOTAL	2,784	992.336	2.719	4.888	6,875

A copy of the City's Water Conservation Checklist and a copy of the City's current water rates are included in the Miscellaneous Documents Chapter (Chapter 10) of this Plan.

4.2 SOURCE OF SUPPLY ANALYSIS

If twenty-year water use projections forecast that demand will exceed existing water rights, the purveyor is required to conduct a *Source of Supply Analysis*. The purpose of the *Source of Supply Analysis* is to evaluate opportunities to obtain or optimize the use of existing sources already developed, and to evaluate other innovative methods to meet water needs. Although Selah's 20-year water use projections forecast that water demand will not exceed existing water rights, a *Source of Supply Analysis* is presented below.

The *Source of Supply Analysis* requires an evaluation and discussion of the following items:

1. Enhanced Conservation Measures
2. Water Rights Changes
3. Interties
4. Artificial Recharge
5. Use of Reclaimed Water, Reuse, and Other Non-Potable Sources
6. Treatment

These items are discussed in detail below.

1. Enhanced Conservation Measures

For the purposes of the *Source of Supply Analysis*, systems required by the Conservation Planning Requirements to evaluate small-size system measures should also evaluate medium-size system measures. Those systems required to evaluate medium-size system measures should evaluate large-size system measures. Selah is currently required, as part of its Conservation Plan, to evaluate medium size system measures. To complete the *Source of Supply Analysis*, Selah is required to evaluate large-size system measures. However, because large-size system measures are identical to medium-size system measures, Selah has satisfied this portion of the *Source of Supply Analysis* requirements.

2. Water Rights Changes

This measure involves examining opportunities to utilize existing water rights via change(s) in water right parameters (change in place of use, change in purpose of use, change in point of diversion or additional points of diversion or withdrawal).

As Selah continues to grow and areas are annexed into the City, Selah should pursue the acquisition of the water rights associated with each newly annexed property. In some cases, the City may need to apply for a change in type of use, or change in point of use of the particular water right. These acquisitions may include:

- ♦ Permitted domestic or industrial ground or surface water rights associated with the annexed property;
- ♦ Permitted irrigation ground or surface water rights associated with the annexed property (these may include those portions supplied by an irrigation district or company); and
- ♦ Ground water rights associated with individual residential property (the domestic exemption water rights).

In addition, residential areas currently served by existing small water systems within Selah's Urban Growth Area may, in the future, become annexed by the City. Selah should acquire the water rights associated with those existing water systems if they become annexed. These include:

- ♦ Selandia Water System
- ♦ High Valley Water System
- ♦ New Horizons Water System
- ♦ Friday Point Water System

3. Interties

This measure involves exploring the feasibility of interties with neighboring systems, and pursuing such opportunities if deemed more cost-effective and viable than new source development. Interties are possible with the following water systems:

- ♦ Selandia Water System
- ♦ High Valley Water System
- ♦ New Horizons Water System
- ♦ Friday Point Water System

4. Artificial Recharge

Artificial recharge is the injection or infiltration of available surface water (usually from high winter flows) or other available water into an aquifer, and its subsequent withdrawal. However, Selah has no surface water right to use for artificial recharge. Selah may acquire a surface water right through some future annexation, but the City would most likely put such a right to direct use rather than using it for artificial recharge.

5. Use of Reclaimed Water, Reuse and Other Non-Potable Sources

This measure involves exploring opportunities for reclaimed water, reuse, non-potable water and greywater as an approach to providing additional water supply. For Selah, such sources of reclaimed or reused water include the Selah wastewater treatment plant, Tree Top, Yakama Juice, Larson Fruit, and Matson Fruit. Reclaim and reuse of wastewater from Selah's wastewater treatment plant would be very expensive, would have very limited uses (seasonal irrigation of City parks and green strips along South First Street), and would conflict with the Department of Ecology's desire to enhance flows in Selah Ditch using wastewater treatment plant effluent. However, there may be possible reuses for some industrial water such as non-contact cooling waters. Use of such waters for irrigation of City parks and green strips, although seasonal, would reduce annual water demand, and lower demand during the critical summer period. Selah will begin investigating the technical, environmental, legal, and economic issues involved in reusing some industrial waters.

6. Treatment

For Selah, water treatment sources are the same as previously discussed in water reuse and reclamation, such as the Selah wastewater treatment plant, Tree Top, Yakama Juice, Larson Fruit, and Matson Fruit.

4.3 WATER RIGHT EVALUATION

The City of Selah currently maintains certified water rights from the State of Washington for the appropriation of ground water at each of its wells. Combined water rights from Wells No. 3, 4, 5, and 6 are not to exceed 1,600 acre-feet, and the water right from Well No. 7 is for 3,160 acre-feet. Selah's water rights from all sources totals 4,760 acre-feet, and the location of use of Selah's water is within the City's water service area. Copies of the "Certificates of Ground Water Rights" are provided in the Miscellaneous Documents Chapter (Chapter 10) of this Plan. Also provided within Chapter 10 of this Plan are the Department of Health's "Existing Water Rights Status" table and "Forecasted Water Rights Status" table.

Shown on Table 4-3 is a summary of the City's water rights and the 2005 (year of highest usage) withdrawals from each well. Information contained within this table shows that Selah's total ground water withdrawals in 2005 were within their total ground water rights. Selah's 20-year water demand forecast of 1,461.676 MG (4,485.73 acre-feet) is less than the City's existing ground water rights of 4,760 acre-feet.

TABLE 4-3 SUMMARY OF GROUND WATER RIGHTS AND 2005 WITHDRAWALS						
Well #	Ground Water Rights				2005 Withdrawals	
	Certificate or Permit #	Priority Date	Rate (GPM)	Volume (acre-ft.)	Rate ^a (GPM)	Volume (acre-ft.)
1	359-D	1920	300	147	0	0
2	360-D	1927	350	171	0	0
3	361-D	Dec. 1944	400	195 ^b	444	516
4	1050-A	Apr. 1947	750	350 ^b		
5	1348-A	Nov. 1951	700	525 ^b	633	831
6	4003-A	May 1959	1,000	1,600	656	577
Subtotal			3,500 ^d	1,600 ^c	1,733	1,924
7	G4-30642P	Mar. 1991	2,000	3,160	1,079	523
TOTAL			5,500	4,760	2,812	2,447
^a Calculated from the maximum day of production from all wells in 2005. ^b The volume from Wells 3, 4, and 5 is not to exceed 890 acre-feet. ^c The volume from wells 3, 4, 5, and 6 is not to exceed 1,600 acre feet. ^d The rate of withdrawal from Wells 3, 4, 5, and 6 is 3,500 GPM.						

4.4 WATER SYSTEM RELIABILITY ANALYSIS

Source Reliability

The single most important aspect of a water utility is its domestic water supply source. The City of Selah's water supply is dependent on ground water sources. As previously discussed in this Plan, the City utilizes five source wells. The locations of these wells within the water system are shown on Map A enclosed in the back of this Plan.

All five City wells are located on property owned by the City and have protective covenants (except Well No. 6) establishing a 100-foot sanitary radius. Copies of the property deeds and protective covenants for each well are provided in the Miscellaneous Documents Chapter (Chapter 10) of this Plan.

As discussed in Chapter 3 of this Plan, there has been no significant change in source well water quality from any of Selah's wells as demonstrated by inorganic chemical and volatile organic chemical monitoring over time. Selah has taken steps to protect its aquifers through implementation of a Wellhead Protection Program. Completed in 1999, the program is intended to protect Selah's aquifers through a combination of regulatory measures, best management practices, and public education and awareness. Details of Selah's Wellhead Protection Program are provided in Chapter 5 of this Plan.

The existing City wells all withdraw water from the Columbia River Basalt Group. This geologic formation consists of four distinct hydrogeologic units. Starting with the oldest, these four units are known as the Grande Ronda, Wampum, and Saddle Mountain Units (made up primarily of basalts of the same name, but also include sedimentary interbeds), and the Overburden Unit.

The Grande Ronda, Wampum, and Saddle Mountain Units vary in thickness in South-Central Washington. Each unit is composed of numerous to several hundred individual basalt flows, which can range in thickness from a few inches to more than 300 feet, with sedimentary interbeds. Distinct, thick sedimentary interbeds separate the Grande Ronda, Wampum, and Saddle Mountain Units.

Four of Selah's existing City wells (Wells No. 3, 4, 5, and 6) penetrate and withdraw water from overburden materials of the Ellensburg Formation. This overburden material consists of undivided, unconsolidated, and semi-consolidated sedimentary deposits and minor basalt and andesite. Review of

the well logs of each source provided in the Miscellaneous Documents section (Chapter 10) of this Plan show layers of sand, gravel, clay, shale, sandstone, and basalt consistent with the geologic definition of overburden materials. Well No. 7 withdraws water from the Wanapum Basalt Formation aquifer.

The local Ellensburg Formation overburden is a distinct aquifer which is utilized by many municipalities for domestic supply. Irrigation wells for agricultural use also penetrate and withdraw from this formation. Consequently, many of the Yakima area communities have experienced diminishing capacities and/or lowering drawdown levels in their source wells over the past 5 to 10 years. However, the limited information on Selah's wells does not reveal that capacities have diminished or that drawdowns have lowered (see Table 4-4).

The United States Geological Survey (USGS) completed a study of the Geologic Framework of the Columbia Plateau Aquifer System in 1990. Excerpts from this study are provided in the Appendix for reference. USGS staff have indicated that the static levels of the various Columbia Plateau Aquifers are in transition, but will stabilize within a 5-year period. Although the static levels will lower, USGS does not expect the drop to be significant.

In 1981, rehabilitation of Well No. 5 improved well capacity from 550 GPM at 150 feet of drawdown to 900 GPM at 150 feet of drawdown. However, when a new pump was installed in 1987 to increase the withdrawal to 1,000 GPM, significant sand production was experienced. A smaller capacity pump was subsequently installed in 1989 which produces approximately 750 GPM with minimal sand.

Wells No. 3 and 4 were rehabilitated in 1993 because of their diminished capacity due to age. The pumps in both wells were replaced with new Peerless vertical turbine pumps. The capacity of Well No. 3 was increased from 280 GPM to 700 GPM, and the capacity of Well No. 4 was increased from 320 GPM to 700 GPM. However, production from Wells 3 and 4 is limited to 400 GPM to reduce sand production.

Provided below in Table 4-4 is a brief description of each of the five Selah wells. Copies of the well logs are included in the Miscellaneous Documents Chapter (Chapter 10) of this Plan.

TABLE 4-4 SOURCE WELLS INFORMATION SUMMARY					
	Well No. 3	Well No. 4	Well No. 5	Well No. 6	Well No. 7
Date Drilled	1944	1947	1951	1960	1994
Well Depth	430 ft.	448 ft.	578 ft.	966 ft.	1,020 ft.
Casing Size / Depth	16"/316 ft. 12"/376 ft. 10"/430 ft.	20"/107 ft. 12"/448 ft.	24"/70 ft. 16"/555 ft.	20"/526 ft. 16"/537 ft. 10"/819 ft. 8"/918 ft.	26"/293 ft. 16"/594 ft. 12"/745 ft.
Initial Flow & Drawdown	85 GPM @ Artesian	1,430 GPM @ 97 ft.	1,400 GPM @ 150 ft.	1,500 GPM @ 110 ft.	1,100 GPM @ Artesian
Initial Static Level	Artesian				Artesian
1976 Flow & Drawdown	360 GPM @ 100 ft.	400 GPM @ 60 ft.	775 GPM @ 170 ft.	750 GPM @ 70 ft.	
1976 Static Level	40 ft.	60 ft.		30 ft.	
1986 Flow & Drawdown			900 GPM @ 215 ft.		
1986 Static Level			15 ft.		
1992 Flow & Drawdown	550 GPM @ 120 ft.				
1992 Static Level	10 ft.				
Current Capacity	400 GPM	400 GPM	750 GPM	1,800 GPM	1,950 GPM

Water Right Adequacy

Selah's existing certified and permitted water rights of 5,500 GPM and 4,760 acre-feet per year were discussed earlier in this Chapter. Selah's existing water rights appear adequate to satisfy the projected demand for the next twenty-year period. Even so, Selah should pursue water conservation measures, and continue its annual review of water production and consumption data.

Facility Reliability

Selah's major water system components have been well operated and maintained, and the majority of the City's pumps are relatively new. Table 4-5 provides a list of Selah's well and booster station pumps, their age, and the year the pumps were installed.

TABLE 4-5 PUMP AND BOOSTER STATION AGE SUMMARY		
Well No. / Booster Station	Pump Age	Year Installed
Well No. 3	5 years	1993
Well No. 4	5 years	1993
Well No. 5	18 years	1982 ^a
Well No. 6	17 years	1981
Well No. 7	4 years	1994
Hospital Hill Booster Station	5 years	1993
Palm Park Booster Station ^b	31 years	1967
Brader Hill Booster Station	2 years	2005
Goodlander Heights Booster Station	13 years	1985
^a The pump was two years old when installed. ^b Standby Booster Station.		

Water Shortage Response Planning

As part of the City Water Code, Selah currently has a water conservation and rationing ordinance to deal with short-term water shortages. That ordinance allows the Public Works Director to implement conservation and rationing measures through four alert stages, these being:

1. Stage 1 - When consumption reaches 85% of production capacity, the public is requested to voluntarily make every effort to conserve water through a variety of means, such as cutting back on irrigation, not washing cars, taking shorter showers, etc.
2. Stage 2 - When consumption reaches 90% of production capacity, the public is requested to practice "even-odd" residential landscape irrigation. Residences with odd numbered address irrigate on odd number calendar days, and those residences with even numbered addresses irrigate on even number calendar days.
3. Stage 3 - When consumption reaches 95% of production capacity, mandatory rationing is implemented which requires that "even-odd" landscape irrigation be practiced, and that residential irrigation only take place between 5 a.m. and noon.
4. Stage 4 - When consumption reaches 100% of production capacity, all residential landscape irrigation with City water is curtailed.

When implementation of water conservation and rationing measures become necessary, the City will actively use the media (radio, television, and newspapers) and mailings to keep water customers informed and to seek their cooperation.

During short-term water shortages, the City will implement the following additional conservation measures:

- ❖ City restrictions on irrigation of parks;
- ❖ City curtailment of pool use;
- ❖ City restrictions on water main and hydrant flushing; and
- ❖ Requesting curtailment on non-essential commercial water use.

4.5 WATER SYSTEM INTERTIES

Selah has no interties with any neighboring water systems, and none are currently proposed. If an intertie is proposed, the City will develop an agreement with the other purveyor, obtain approval of the intertie from the Department of Health and the Department of Ecology, modify appropriate water rights to reflect the intertie, and incorporate the intertie into the Comprehensive Water Plan. The intertie agreement would include the following:

- ❖ Discussion of the place of use as authorized in appropriate water rights documents;
- ❖ Identification of the specific time period(s) in which water will be provided;
- ❖ Quantification of the amount of water available for use;
- ❖ Discussion of seasonal or other restrictions on water availability; and
- ❖ Discussion of how water conservation programs, data collection, and other operational matters will be conducted and coordinated.

CHAPTER 5

SOURCE WATER PROTECTION

5.1 WELLHEAD PROTECTION PROGRAM

The City of Selah was one of eight water providers within the upper portion of Yakima County which participated in the Upper Yakima Valley Regional Wellhead Protection Plan. The purpose of the plan was to:

- ♦ Identify potential sources of contamination near the City's ground water supplies;
- ♦ Implement management strategies to prevent contamination of those supplies; and
- ♦ Develop a contingency plan for contamination mitigation in the event that ground water does become contaminated.

Completed in 1999, the Upper Yakima Valley Regional Wellhead Protection Plan resulted in individual wellhead protection plans for each of the participating water providers, including:

City of Yakima
City of Moxee
Town of Tieton
City of Selah

Yakima County
Town of Naches
City of Union Gap
Nob Hill Water Association

The City of Selah's Wellhead Protection Plan, prepared in accordance with the Department of Health's requirements, consists of a regional management segment detailing the regional management goals of the study and its eight participants, and a Selah-specific segment that defines the implementation of Selah's local management efforts. Selah's individual Wellhead Protection Plan is divided into the following five sections:

- ♦ A water system summary, developed from Selah's existing 1994 Comprehensive Water Plan, updated with more current information.
- ♦ Wellhead protection area delineations, developed using an analytical model for Selah's projected water production in the Year 2018.
- ♦ An inventory of potential contamination sources, developed using Department of Ecology databases and a survey of high risk businesses in the area.
- ♦ A contingency plan, which includes an analysis of source capacity, reliability, and water rights, short- and long-term alternate water sources, and emergency and spill response procedures.
- ♦ A wellhead protection management plan which details regional and local management efforts to protect the City's ground water supplies.

The City of Selah's Wellhead Protection Plan is considered a companion document to this Comprehensive Water Plan, and should be consulted for specific details and information regarding Selah's wellhead protection program.

As part of this Comprehensive Water Plan, the Potential Contaminant Source and Notification List has been updated and is presented below.

Potential Contaminant Source List

<u>No.</u>	<u>Potential Source</u>	<u>Location</u>
1.	Selah 7-Eleven	120 North First Street
2.	E-Z Markets	313 South First Street
3.	Larson Fruit Co.	109 North Wenas Road
4.	Larson Orchards, Inc.	1330 Reservoir Loop
5.	Leonardo Truck Lines, Inc.	700 South First Street
6.	Roadrunner Deli Mart, Inc.	103 West Fremont Avenue

7.	Selah Express	777 North Park Centre
8.	Selah Mini Mart	301 South First Street
9.	Selah Roofing, Inc.	1104 West Cherry Avenue
10.	Selah School District (Bus Facility)	Home Avenue
11.	Yakima Coop Assoc.	110 East First Avenue
12.	Selah Public Works Shop	219 East First Avenue
13.	Selah Wastewater Treatment Facility	222 South Railroad Avenue

5.2 EXEMPT WELLS

The City of Selah allows the drilling and use of exempt wells within its service area only if the property to be served is located outside the area served by the City's water system. Exempt wells are defined in state law (RCW 90.44.050) as:

" . . . any withdrawal of public ground waters for stock-watering purposes, or for the watering of a lawn or of a noncommercial garden not exceeding one-half acre in area, or for a single or group domestic uses in the amount not exceeding five thousand gallons a day, or for an industrial purpose in the amount not exceeding five thousand gallons a day, is and shall be exempt from the provisions of this section . . .".

The City requires those areas served by exempt wells to connect to the City's water system when it extends to the property. At that time, any exempt wells on the property shall either be decommissioned in accordance with the applicable Washington Administrative Code (WAC) requirements, or taken over by the City to become part of the City's water system.

5.3 MODIFICATIONS TO THE WELLHEAD PROTECTION PLAN

When completed, information regarding the City's new source well (S07 - Well No. 8) will be added to the City's Wellhead Protection Plan. In addition, the Potential Contaminant Source and Notification List, originally developed in 2000, has been updated in 2007 as part of this Comprehensive Water Plan.